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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/685,333 | 10/06/2000 | Hiroshi Kubo | 1807-126A | 3167 |

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WASHINGTON, DC 20005

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| EXAMINER |
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TRINH, SONNY

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| ART UNIT | PAPER NUMBER |
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2618

| SHORTENED STATUTORY PERIOD OF RESPONSE | NOTIFICATION DATE | DELIVERY MODE |
|--|-------------------|---------------|
| 3 MONTHS | 01/24/2007 | ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 01/24/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

Office Action Summary

Application No.

09/685,333

Applicant(s)

KUBO, HIROSHI

Examiner

Sonny TRINH

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1,3-8 and 10 is/are rejected.
- 7) ☒ Claim(s) 2 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Current Status:

1. This Office Action is in response to the amendment filed 11/03/06. Claims 1-10 are pending. Claims 11-12 are canceled.

Response to Arguments

2. Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1, 4, 8, 10** are rejected under 35 U.S.C. 102(b) as being anticipated by Kai et al. (hereinafter "Kai"; U.S. Patent number 4,490,830).

Regarding **claim 1**, with reference to figure 2 (column 3 line 57 to column 4 line 17), Kai discloses a radio communication system (please summary of the invention) comprising:

a plurality of transmitters each having at least one antenna for transmitting identical signals with the same frequency band (figure 2, antenna 16, 26, with signal originated from identical signal generator 30, (please see abstract) and

a receiver for receiving said signals (inherent), wherein, said signals being transmitted from said at least one antenna of one transmitter of said plurality of transmitters is delayed an arbitral delay time so that output power which is different from at least one delay output in the other transmitters is set in each of said plurality of transmitters (figure 2, signal output from antenna 26 is delayed by delay circuit 70, see column 1 lines 8-26, column 4 line 61 to column 5 line 5)) .

Regarding **claim 4**, this claim is interpreted and rejected for the same reasons as given in the rejection of claim 1 above.

Regarding **claim 8**, Kai further discloses a transmitter (figure 2) characterized in that in the case where a plurality of transmitters transmit same signals with same frequency band (abstract, column 1 lines 8-26), at least one antenna is provided, and an arbitrary delay (figure 2, delay 70) is given to said antenna so that an output power which is different from at least one delay output in the other transmitters is set (RF amplifiers 15 and 25 are obviously have different output powers, see column 2 line 52 to column 4 line 17).

Regarding **claim 10**, this claim is interpreted and rejected for the same reasons as given in the rejection of claim 8 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 3, 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kai.

Regarding **claims 3, 5**, Kai discloses the invention but does not disclose that a receiver comprises an equalizer for demodulating a signal transmitted from at least one antenna in each of the transmitters. However, demodulator as well as equalizer are essential elements in a receiver for demodulating a demodulated signal and for the purpose of adjusting the amplitude and phase characteristics of the demodulated image signal. The use of the demodulator and equalizer are therefore obvious and well within the level of a person of ordinary skill in the art.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 6-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kai in view of Solondz (U.S. Patent Number 6,259,730 B1).

Regarding **claim 6**, Kai discloses the invention but does not explicitly disclose that said signals being supplied to said plurality of antennas are obtained by differently delaying modulated signals and carrying out amplitude regulation on the signals, and at least one of the delay amount and the value of amplitude regulation is set to different values in each of said antennas.

In an analogous art, Solondz teaches a transmit diversity and reception equalization for radio links (abstract). Solondz further teaches the different delay modules which obviously have different value of amplitude regulation (gain) (figure 6, column 4 lines 8-57).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to incorporate the different delay modules, as taught by Solondz, into the system of Kai in order to compensate for the known distortion in a manner which provides improved signal gain. The improved signal gain permits a reduction in transmit power and, accordingly, increased capacity of the base station.

Regarding **claim 7**, the combination of Kai and Solondz discloses the invention but does not disclose that a receiver comprises an equalizer for demodulating a signal transmitted from at least one antenna in each of the transmitters. However, demodulator as well as equalizer are essential elements in a receiver for demodulating a demodulated signal and for the purpose of adjusting the amplitude and phase characteristics of the demodulated image signal. The use of a demodulator and equalizer are therefore obvious and well within the level of a person of ordinary skill in the art.

Allowable Subject Matter

6. **Claims 2 and 9** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding **claims 2 and 9**, the applied references fail to disclose or render obvious the claimed limitations specifically wherein when different delays as the arbitrary delays are given to a plurality of antennas, a combination of output powers which is different from corresponding delay outputs in the other transmitters is set.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sonny TRINH whose telephone number is 571-272-7927. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward URBAN can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

1/17/07


SONNY TRINH
PRIMARY EXAMINER